

REMARKS

Claims 1-31 were examined in the Office Action March 24, 2005. The following address each of the issues raised in the Office Action.

Drawings and Specification: The proposed drawing figure the Applicants submitted with the September 26, 2006 response was objected to for failure to conform to left and right margin limits. The Applicants are submitting herewith a revised drawing meeting the 37 C.F.R. § 1.84 requirements. Examiner approval of the revised figure is respectfully requested.

Rejections Under § 103(a): Claims 1-31 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the following references:

- Claims 1-6, 8, 12, 16-19, 21-22, 24, 28 and 30-31: U.S. Patent No. 6,314,383 B1 to Leimbach, *et al.* ("Leimbach") in view of U.S. Patent No. 6,332,354 B1 to Lalor, *et al.* ("Lalor").
- Claim 20: Leimbach and Lalor, in further view of U.S. Patent No. 6,438,510 B2 to Zhu, *et al.* ("Zhu").
- Claims 7 and 23: Leimbach and Lalor, in further view of U.S. Patent No. 6,374,171 B2 to Weiberle, *et al.* ("Weiberle").
- Claims 9 and 25: Leimbach and Lalor, in further view of U.S. Patent No. 6,059,379 B1 to Demi, *et al.* ("Demi").
- Claims 10 and 26: Leimbach and Lalor, in further view of U.S. Patent Publication No. US 2002/0008423 A1 to Yasui, *et al.* ("Yasui").
- Claims 11 and 27: Leimbach, Lalor and Demi, in further view of Yasui.
- Claims 13 and 28: Leimbach and Lalor, in further view of U.S. Patent No. 5,485,381 A to Heintz, *et al.* ("Heintz").

The Applicants respectfully traverse the pending rejections based on Leimbach, on the grounds that this reference, either alone or in combination

with the other cited references, fails to teach or suggest all the features of the present invention recited in independent claims 1 and 16 and their respective dependent claims.

In response to the Examiner's apparent interpretation of the term "consideration" (in the phrase "wherein apart from a driving force of a vehicle drive unit, resistance forces resulting from rotational forces, air resistance, rolling resistance and the slope descending force are taken into consideration") as not requiring each of the forces to be *included* in the mass calculations, the Applicants have amended the claims to more clearly recite that "the vehicle acceleration is determined from resistance forces resulting from rotational forces, air resistance, rolling resistance and the slope descending force." Thus, the claims now recite that the resistance force from slope is not merely "considered," but this force is included in the vehicle acceleration calculation.

The Applicants have further amended claims 1 and 16 to incorporate the limitations of their respective dependent claims 2 and 17 to recite the combination of individual mass values into a combined mass value. Conforming amendments cancelling claims 2, 5 and 17 (without prejudice to the subject matter therein) and changing the dependencies of claims 3 and 18, accordingly.

The Leimbach Reference. The December 21, 2005 Office Action asserts that Leimbach discloses a system and method for determining a vehicle mass while taking different driving situations into account, as points to the Leimbach specification at 3:31-51 for an equation which relates vehicle mass, acceleration and driving forces. December 21, 2005 Office Action at 3. The Applicants

respectfully submit that the cited portion of Leimbach does not support the rejection, and further that Leimbach does not teach or suggest all of the features of the present invention recited in independent claims 1 and 16.

Rather than disclosing or suggesting the present system and method, the cited portion of Leimbach teaches the well-known *theoretical* relationship between mass, acceleration and drive forces (*i.e.*, $F=ma$), but then proceeds to describe a system and method which *avoids inclusion of forces due to road slope in the mass calculation* – exactly the *opposite* of the present invention -- by rejecting mass estimates when road slope may be present. Specifically, Leimbach teaches that a “sufficiently precise for practical use” estimate of vehicle mass can be obtained using only wheel speed sensors, *if mass estimates which might be “tainted” with road slope are discarded*. See, e.g., Leimbach at 1:64-2:1 (“A roadway slope is detected using a comparison [of the present mass estimated to a prior estimate], *whereby an erroneous determination of mass due to roadway slope is avoided* without necessitating an additional sensor for determining ... the roadway slope”); at 4:64-5:15 (“To determine whether there is a significant roadway slope ... it is determined whether the value ΔM [difference between mass estimate values] ... is within a predetermined range.”; if outside the range, a slope is presumed to be present, and “block 27 is controlled *such that no value M_{ges} is formed for the mass.*”) (emphasis added).

Thus, rather than teaching a system or method which can determine road slope forces so these forces can be included in mass calculations, Leimbach teaches a system which has *no* ability to include road slope forces. Leimbach

therefore fails to disclose or suggest a system or method in which “the vehicle acceleration is determined from resistance forces resulting from rotational forces, air resistance, rolling resistance and the slope descending force.”

Leimbach further fails to disclose or suggest the amended claims’ storage and use of a plurality of mass evaluation results from different driving situations to obtain a collective mass value, and this feature is not taught or suggested by any of the remaining references. Leimbach is cited at page 4 of the Office Action as teaching this feature, however detailed review demonstrates that this is not correct. The cited portion of Leimbach (4:16-34) actually describes how Leimbach handles the situation in which there may be a road slope present – it *discards* any mass data as unreliable. There is simply no disclosure or suggestion of *any* mass data storage for the purpose of combining individual mass estimates from different driving situations to obtain a collective mass value.

The Office Action also cites to Leimbach Fig. 3 as showing “both curves a and b represent the function of the estimated mass M_i with respect to the drive force F_{antri} ,” and then summarily asserts that these teachings read on the claimed storage and derivation of a collective mass value. December 21, 2005 Office Action at 4.

Leimbach’s description of Fig. 3, however, makes clear that this is not a graph of actual or stored mass values (let alone contain any disclosure or suggestion of determination of a collective mass value), but instead is a graph illustrating how, *in theory*, the presence of a road slope (curve b) would

theoretically *effect* the results of a mass calculation, as compared to mass calculations associated with acceleration on a level surface (curve a) – in other words, Fig. 3 illustrates *why Leimbach requires discarding of mass data that may have been adversely influenced by a road slope*. Leimbach at 4:27-51.

Because Leimbach does not teach or suggest the foregoing features of the present invention recited in independent claims 1 and 16, and these deficiencies are not cured by the remaining cited references, claims 1 and 16 and their respective dependent claims are patentable over Leimbach, *et al.* under § 103(a). Reconsideration and withdrawal of the pending § 103(a) rejections is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, the Applicants respectfully submit that claims 1, 3-4, 6-16 and 18-31 are now in condition for allowance, and requests issuance of a Notice of Allowance for these claims.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

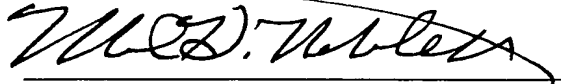
If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit

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Account No. 05-1323 (Docket #080437.52816US).

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "J.D. Sanok", written over a horizontal line.

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IN THE DRAWINGS:

Please add new Figure 1, attached hereto.